

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An authentication system including a plurality of wireless IC tags and an authentication apparatus which permits a user to use a function provided by the authentication apparatus if authenticity of the user is certified by authentication,

the authentication apparatus comprising:

a tag verification information storage unit operable to store a plurality of pieces of tag verification information for identifying the plurality of wireless IC tags, respectively;

an identification information storage unit operable to store first identification information;

a receiving unit operable to wirelessly receive, from wireless IC tags attached to objects carried by the user, a plurality of pieces of tag certification information for identifying the wireless IC tags attached to the objects, respectively;

a tag judgment unit operable to judge whether or not a level of match between the plurality of pieces of tag verification information and the plurality of pieces of tag certification information satisfies a predetermined condition;

a user judgment unit operable to, if the tag judgment unit judges that the level of match does not satisfy the predetermined condition, receive second identification information and judge whether or not the first identification information matches the received second identification information; and

a permission unit operable to permit a use of the function if the tag judgment unit judges that the level of match satisfies the predetermined condition, or permit the use of the function if the tag judgment unit judges that the level of match does not satisfy the predetermined condition and the user judgment unit judges that the first identification information matches the received second identification information, and

each of the plurality of wireless IC tags comprising:

a tag certification information storage unit operable to store a piece of tag certification information for identifying a wireless IC tag storing the piece of tag certification information; and

an output unit operable to output wirelessly the piece of tag certification information, wherein the plurality of pieces of tag verification information are a plurality of verification ID codes for identifying the plurality of wireless IC tags, respectively,

wherein the plurality of pieces of tag certification information are a plurality of certification ID codes for identifying the wireless IC tags attached to the objects, respectively, and

wherein the authentication apparatus further comprises an update unit operable to, if a predetermined condition for update is satisfied, acquire at least two certification ID codes out of the plurality of certification ID codes wirelessly received by the receiving unit, and update contents of the tag verification information storage unit by storing the at least two acquired certification ID codes into the tag verification information storage unit as verification ID codes.

2. (Currently Amended) An authentication apparatus which permits a user to use a function provided by the authentication apparatus if authenticity of the user is certified by authentication, the authentication apparatus comprising:

a tag verification information storage unit operable to store a plurality of pieces of tag verification information for identifying a plurality of wireless IC tags, respectively;

an identification information storage unit operable to store first identification information;

a receiving unit operable to wirelessly receive, from wireless IC tags attached to objects carried by the user, a plurality of pieces of tag certification information for identifying the wireless IC tags attached to the objects, respectively;

a tag judgment unit operable to judge whether or not a level of match between the plurality of pieces of tag verification information and the plurality of pieces of tag certification information satisfies a predetermined condition;

a user judgment unit operable to, if the tag judgment unit judges that the level of match does not satisfy the predetermined condition, receive second identification information and judge whether or not the first identification information matches the received second identification information; and

a permission unit operable to permit a use of the function if the tag judgment unit judges that the level of match satisfies the predetermined condition, or permit the use of the function if the tag judgment unit judges that the level of match does not satisfy the predetermined condition and the user judgment unit judges that the first identification information matches the received second identification information,

wherein the plurality of pieces of tag verification information are a plurality of verification ID codes for identifying the plurality of wireless IC tags, respectively,

wherein the plurality of pieces of tag certification information are a plurality of certification ID codes for identifying the wireless IC tags attached to the objects, respectively, and

wherein the authentication apparatus further comprises an update unit operable to, if a predetermined condition for update is satisfied, acquire at least two certification ID codes out of the plurality of certification ID codes wirelessly received by the receiving unit, and update contents of the tag verification information storage unit by storing the at least two acquired certification ID codes into the tag verification information storage unit as verification ID codes.

3 - 5. (Cancelled)

6. (Previously Presented) The authentication apparatus of Claim 2,

wherein the predetermined condition for update is that the first identification information matches the second identification information, and

the update unit updates the contents of the tag verification information storage unit if the first identification information matches the second identification information.

7. (Previously Presented) The authentication apparatus of Claim 2 further comprising:

a distance calculating unit operable to measure values of a response time during communication between the authentication apparatus and each of the wireless IC tags attached to the objects, and calculate values of a distance between the authentication apparatus and each of the wireless IC tags attached to the objects based on the measured values of the response time,

wherein the update unit is further operable to acquire at least two certification ID codes for which calculated values of the distance are each equal to or lower than a predetermined value, from the plurality of received certification ID codes.

8. (Previously Presented) The authentication apparatus of Claim 2, wherein

each of the plurality of certification ID codes contains a type code indicating a type of an object to which a wireless IC tag identified by the certification ID code is attached, and

the update unit is further operable to acquire at least two certification ID codes containing a predetermined type code, from the plurality of certification ID codes received by the receiving unit.

9. (Cancelled)

10. (Cancelled)

11. (Previously Presented) The authentication apparatus of Claim 8 further comprising:

a point storage unit operable to store a plurality of point values with a plurality of type codes corresponding thereto,

wherein the predetermined type codes are correlated with point values that are equal to or higher than a point-value threshold value, and

the update unit is further operable to acquire at least two certification ID codes that have point values that are equal to or higher than the point-value threshold value, from the plurality of certification ID codes received by the receiving unit, and update contents of the tag verification information storage unit by storing the at least two acquired certification ID codes into the tag verification information storage unit as verification ID codes by priority.

12. (Original) The authentication apparatus of Claim 11 further comprising:

a point update unit operable to receive a type code and a point value, and update the point storage unit by replacing a point value, which is stored in the point storage unit in correspondence with the received type code, with the received point value.

13 - 21. (Cancelled)

22. (Currently Amended) An authentication method for an authentication apparatus which permits a user to use a function provided by the authentication apparatus if authenticity of the user is certified by authentication,

the authentication apparatus comprising:

a tag verification information storage unit operable to store a plurality of pieces of tag verification information for identifying a plurality of wireless IC tags respectively;

an identification information storage unit operable to store first identification information, and

the authentication method comprising the steps of:

wirelessly receiving, from wireless IC tags attached to objects carried by the user, a plurality of pieces of tag certification information for identifying the wireless IC tags attached to the objects, respectively;

judging whether or not a level of match between the plurality of pieces of tag verification information and the plurality of pieces of tag certification information satisfies a predetermined condition;

receiving, if the level of match judging step judges that the level of match does not satisfy the predetermined condition, second identification information and judging whether or not the first identification information matches the received second information; and

permitting a use of the function if the level of match judging step judges that the level of match satisfies the predetermined condition, or permitting the use of the function if the level of match judging step judges that the level of match does not satisfy the predetermined condition and the identification information judging step judges that the first identification information matches the received second identification information,

wherein the plurality of pieces of tag verification information are a plurality of verification ID codes for identifying the plurality of wireless IC tags, respectively,

wherein the plurality of pieces of tag certification information are a plurality of certification ID codes for identifying the wireless IC tags attached to the objects, respectively, and

wherein the authentication method further comprises the steps of acquiring, if a predetermined condition for update is satisfied, at least two certification ID codes out of the plurality of certification ID codes wirelessly received by the receiving step, and updating contents of the tag verification information storage unit by storing the at least two acquired certification ID codes into the tag verification information storage unit as verification ID codes.

23. (Cancelled)

24. (Currently Amended) A non-transitory computer-readable recording medium having an authentication program recorded thereon that when executed causes a computer to operate as an authentication apparatus which permits a user to use a function provided by the authentication apparatus if authenticity of the user is certified by authentication,

the authentication apparatus comprising:

a tag verification information storage unit operable to store a plurality of pieces of tag verification information for identifying a plurality of wireless IC tags respectively;

an identification information storage unit operable to store first identification information, and

the authentication program comprising the steps of:

wirelessly receiving, from wireless IC tags attached to objects carried by the user, a plurality of pieces of tag certification information for identifying the wireless IC tags attached to the objects respectively;

judging whether or not a level of match between the plurality of pieces of tag verification information and the plurality of pieces of tag certification information satisfies a predetermined condition;

receiving, if the level of match judging step judges that the level of match does not satisfy the predetermined condition, second identification information and judging whether or not the first identification information matches the received second identification information; and

permitting a use of the function if the level of match judging step judges that the level of match satisfies the predetermined condition, or permitting the use of the function if the level of match judging step judges that the level of match does not satisfy the predetermined condition and the identification information judging step judges that the first identification information matches the received second identification information,

wherein the plurality of pieces of tag verification information are a plurality of verification ID codes for identifying the plurality of wireless IC tags, respectively,

wherein the plurality of pieces of tag certification information are a plurality of certification ID codes for identifying the wireless IC tags attached to the objects, respectively, and

wherein the authentication program further comprises the steps of acquiring, if a predetermined condition for update is satisfied, at least two certification ID codes out of the plurality of certification ID codes wirelessly received by the receiving step, and updating contents of the tag verification information storage unit by storing the at least two acquired certification ID codes into the tag verification information storage unit as verification ID codes.

25. (Cancelled)